



## **Environmental Assessment**

# **Palo Alto/Mt View/Moffett Area Reclaimed Water Pipeline Project**



**U.S. Department of the Interior  
Bureau of Reclamation  
Mid-Pacific Region**

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## Acronym List

APE	Area of Potential Effects
CEQA	California Environmental Quality Act
ESA	Environmental Science Associates
IS/MND	Initial Study/Mitigated Negative Declaration
NEPA	National Environmental Policy Act
Reclamation	US Bureau of Reclamation
SFPUC	San Francisco Public Utilities Commission

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## Chapter 1 Introduction

The Palo Alto Regional Water Quality Control Plant (RWQCP or Regional Plant) proposes to repair and expand its water reuse system. Under the proposed project (Project), Palo Alto RWQCP would replace a deteriorated pipeline to restore recycled water service to the Shoreline Golf Links. The Project would also extend the pipeline to sites in the Shoreline Area, the City of Mountain View north of Highway 101 and the Moffett Field Development Area to supply recycled water for use in irrigation of parks, golf courses, medians and other green spaces. The proposed pipeline would allow for the distribution of high-quality recycled water suitable for unrestricted, non-potable (not fit for drinking) uses. The Project is an expansion of the City of Palo Alto's existing Water Reuse Program. The Program currently serves parts of the City of Palo Alto and ultimately is envisioned to serve recycled water throughout the service area for the Palo Alto Regional Plant.

Currently, the water reclamation facility at the Regional Plant has the capacity to treat up to approximately 4 million gallons per day (mgd) of wastewater to the level necessary for unrestricted non-potable reuse, as established by Title 22 of the California Code of Regulations. In terms of current total water use, about 1.5 mgd is used for landscape irrigation (Palo Alto Municipal Golf Course and Greer Park), environmental enhancement, and dust control at construction sites throughout the Project area.

There is adequate treatment capacity to produce the additional recycled water for unrestricted use proposed under the Project. No additional treatment facilities or changes to the treatment system are proposed as part of the Project. Under the proposed Project, use of recycled water could increase by 1.4 mgd or 1,600 acre-feet per year (afy).

Public Law 102-575, Title XVI, Section 1604 provides general authority for the Bureau of Reclamation (Reclamation) to participate with a non-Federal sponsor in a feasibility study for water recycling projects. In order for Reclamation to participate further in the design and construction of this project, Congress must provide construction authorization and appropriation.

### 1.1 Background

Palo Alto's Water Reuse Program began in the early 1980s, with the delivery of reclaimed water to Shoreline Golf Links. The system was substantially modified to include the Palo Alto golf course, Greer Park, and the Renzel Marsh. Palo Alto then completed a *Water Reclamation Master Plan for the Palo Alto RWQCP* (Master Plan) (Brown and Caldwell, 1992) and the accompanying Final Program EIR (CH2MHill, 1995). The Palo Alto RWQCP developed the Master Plan in conjunction with its member agencies to address two main goals:

- 1) Reduce demand on drinking water supplies by providing recycled water suitable for nonpotable uses, and
- 2) Reduce metals discharge and improve overall water quality to the San Francisco Bay in part by reducing wastewater discharge to the bay. The Master Plan includes a phased approach to the expansion of treatment, distribution, storage and use of recycled water.

The Program EIR evaluated, at a program-level, development of a regional water reuse system that could ultimately provide service to the entire RWQCP service area including the cities of Palo Alto, Mountain View, Los Altos, East Palo Alto, Los Altos Hills, part of Menlo Park, as well as Stanford University. The Program EIR addressed the environmental effects of the overall Water Reuse Program and also included a

focused, project-level review of one specific project –the Foothill Main Project. The Foothill Main Project would have established an initial distribution system running from the Regional Plant to the Santa Cruz Mountain foothills, a storage reservoir in the foothills southwest of Stanford University, and the use of recycled water for landscape irrigation at Stanford, several city parks, and a highway interchange.

The Program EIR acknowledged that the Foothill Main Project may or may not be the first project implemented and indicated that no specific arrangements or commitments with potential users had been made. But by providing project-level CEQA analysis of that project, the Program EIR did provide detailed analysis of a potential project that could be representative of the overall Water Reuse Program in terms of the environmental setting affected, the nature and potential for significant impact and the appropriate types of mitigation.

## 1.2 CEQA and NEPA Processes

The Project is an element of the Master Plan adopted by the City and addressed in the 1995 Program EIR. The City of Palo Alto was the Lead Agency for compliance with the California Environmental Quality Act (CEQA) environmental review process for the Project. The City prepared and circulated an Initial Study/Draft Mitigated Negative Declaration (IS/MND) in December 2003 that examined potential impacts associated with the Project (ESA, 2003). (The project title in the IS/MND, *Palo Alto Regional Water Quality Control Plant Recycled Water Pipeline Project* has now been changed to the *Palo Alto/Mountain View/Moffett Area Reclaimed Water Pipeline Project*).

The IS/MND used that Program EIR as the foundation for the environmental assessment. The environmental analysis built on the impact and mitigation information developed in the Program EIR and either confirmed that the previous analysis remained accurate or provided the necessary update and revision to the analysis to address the specific effects of this Project.

The Cities of Palo Alto and Mountain View and the State Water Resources Control Board (SWRCB) were the key responsible agencies for the Project. The Cities of Palo Alto and Mountain View had an approval role over aspects of the Project siting and construction (e.g., approving encroachments into City streets). The SWRCB had a funding role through the State Revolving Fund program and used the City's CEQA document in its decision-making process regarding funding approval.

The U.S. Bureau of Reclamation (Reclamation) is the lead Federal agency for compliance under the National Environmental Policy Act. The Federal proposed action is to provide funding for the design and construction of the project under PL102-575, Title XVI, subject to Congress providing authorization and appropriation. Based on this authorization, Reclamation may provide up to 25 percent of project construction cost to a maximum Federal cost share contribution of \$20 million (October 1996 prices). Currently, the project has feasibility study authority under Section 1604 of the Act but construction authority is needed for implementation.

## Chapter 2 Purpose and Need

The purpose of the proposed Project is to

- 1) replace the deteriorated pipe that serves the Mountain View North Shoreline area
- 2) facilitate the use of recycled water as a replacement for potable water, and
- 3) to reduce the Regional Plant's discharge of treated wastewater to San Francisco Bay as means of reducing the discharge of pollutants.

Both Palo Alto and Mountain View rely primarily on the San Francisco Public Utilities Commission's (SFPUC) Hetch Hetchy system for water supply. Both cities supplement their SFPUC supply with local groundwater wells. In addition, Mountain View receives some supply from the Santa Clara Valley Water District (SCVWD). While both cities have adequate supply to meet current demands on average, both communities face the need to improve supply reliability during drought periods and emergencies. The SFPUC is currently pursuing a major capital improvement program to upgrade the Hetch Hetchy water supply system, due to vulnerability in a number of places to potential disruption and outage particularly during a significant earthquake. Communities, including the cities of Palo Alto and Mountain View, which rely on the Hetch Hetchy system, can improve their water supply reliability by taking steps locally to manage potable water demand by providing supplemental water sources, such as the proposed recycled water project.

The Regional Plant discharges treated municipal and industrial wastewater to the southern reach of the San Francisco Bay (South Bay) via a man-made channel. The quantity of pollutants in the Regional Plant's effluent has continually decreased over time as a result of improved source control and treatment efforts. However, since the South Bay receives less dilution and mixing from tidal action than other areas of the San Francisco Bay, the presence of minute quantities of pollutants in the effluent, and the potential effects of those pollutants on the South Bay environment continues to be of concern.

The Regional Plant is regulated by its National Pollution Discharge Elimination System (NPDES) permit, issued by the RWQCB. In April 1991, the RWQCB established a new set of effluent limits for the Regional Plant. The Regional Plant began efforts to identify and evaluate environmentally beneficial and cost effective ways to limit its discharge of pollutants. In July 1993, the RWQCB issued a new NPDES permit to the Regional Plant with new limits that were substantially lower than the previous limits. The Regional Plant evaluated several programs to achieve compliance with the new metals limit. Water reclamation was selected based on factors including environmental and technical soundness, cost, and benefit. Water reuse was chosen as a key strategy to complement other strategies that were also chosen for implementation.

## Chapter 3 Project Description and Alternatives

### 3.1 Project Changes from the IS/MND

Since the IS/MND was distributed in December 2003, additional engineering design information is now available and this EA analyzes the revised project description (as described in Section 3.2). The main differences between the IS/MND project and this revised EA project are:

- No pipeline would be constructed across the marsh area along the levee from the Regional Plant to the Shoreline Golf Links
- The pipeline would not cross any creeks directly; instead the pipeline would hang from existing bridges to cross three creeks (Matadero Creek, Adobe Creek, and Permanente Creek) to avoid any surface disruption to the creeks.
- The project is now divided into two phases. Phase 1 would include the entire pipeline from the RWQCP to Stevens Creek. The Phase 1 pipe would not cross Stevens Creek and would not serve the Moffett Field area at this time. This EA is only for Phase I. Additional NEPA compliance would be required for Phase II, if Federal funding is anticipated. When the planning efforts for the Moffett Field Area are completed, the Phase 2 pipeline would connect to this area.
- Specific lateral pipeline locations are now included in the project and in the Area of Potential Effects (APE).

### 3.2 Proposed Project

#### PIPELINES

A new pipeline would be constructed from the Regional Plant south to the Moffett Field area. The existing pipeline that extends across the marsh area to the Shoreline Golf Links would be abandoned in place so as not to disturb the marsh habitat. No new facility construction is proposed in or across the marsh area.

**Figure 3-1** shows the proposed pipeline alignment. The majority of the pipeline would be installed in an open cut trench except for two roadway intersections where a trenchless construction technique, such as microtunneling or horizontal directional drilling would be used to cross under the area with minimal surface disruption. Additionally, the recycled water pipeline would hang on existing bridges at three creek crossings (Matadero Creek, Adobe Creek, and Permanente Creek), again making the crossing without surface disruption. The bridges over Matadero and Adobe Creek were built as part of the Hwy 101 construction in 1958. However, the bridge on Permanente Creek was built more recently in 1988.



Figure 3-1 - Proposed Pipeline Alignment 1





The proposed pipeline alignment begins at the RWQCP and the pipeline runs approximately 730 feet along Embarcadero Way, 2,100 feet along Embarcadero Road south to East Bayshore Road. The pipeline would be installed across the intersection of Embarcadero Road and East Bayshore Road by a horizontal directional drill technique. The pipeline would run 5,000 feet along East Bayshore Road to Matadero Creek. The pipeline would be installed by hanging the pipeline on the side of the existing East Bayshore Bridge structure across Matadero Creek and in East Bayshore Road in the roadway. The pipeline would then extend down East Bayshore Road for approximately 3,700 feet before reaching Adobe Creek. The pipeline would be installed by hanging the pipeline on the side of the existing East Bayshore Bridge structure across Adobe Creek. The pipeline would then continue another 1,900 feet southeast on East Bayshore Road before crossing San Antonio Road by microtunneling underneath the intersection. The pipeline would continue approximately 1,000 feet along Bayshore Parkway before turning east onto Garcia Avenue for approximately 3,400 feet, then Charleston Road for approximately 1,600 feet before crossing Permanente Creek. The pipeline would be installed by hanging the pipeline on the existing Charleston Road Box Culvert structure across Permanente Creek. The pipeline would continue 2,500 feet within Charleston Road until it reaches the intersection of Charleston Road and North Shoreline Boulevard. The pipeline alignment then continues south along Shoreline Boulevard for approximately 1,900 feet before turning east onto Pear Avenue for 700 feet. The pipeline would then be installed from Pear Avenue south on Inigo Way for 800 feet before turning east on La Avendia Avenue. The pipeline alignment would then continue east on La Avendia Avenue for 600 feet before turning south onto Macon Avenue for approximately 900 feet.

Lateral pipelines would be installed off the main pipeline to deliver water to specific user sites. These short lateral pipelines would range from 6 to 16 inches in diameter and would be constructed within public streets and right-of-ways. Final locations for those laterals were determined in consultation with specific users to identify the best point to tie into the existing user site irrigation systems.

## REUSE SITES

Potential reuse sites lie within the City of Mountain View and Palo Alto. The original study area for potential use sites was bounded by the Palo Alto RWQCP to the west, the San Francisco Bay to the north, Middlefield Road to the south and the Moffett Field area to the east. However, reuse sites have not been identified south of Highway 101 and within the Moffett Field Development Area for this phase of expansion, therefore the southern Project boundary was redefined to be Highway 101. The study area boundary is illustrated on **Figure 3-1**. The major sites within the study area are Shoreline Golf Links and Shoreline Park, Charleston Park, median strips, and business area landscape irrigation. **Table 3-1** summarizes the projected water reuse demand estimate for each of the identified reuse sites. The reuse demand estimate for each site and the total is approximate. The Regional Plant would like to maximize water reuse in accordance with user needs.

### ***SHORELINE PARK AREA AND GOLF COURSE***

The City of Mountain View owns and operates the Shoreline Golf Links and Park area, which includes Shoreline Park, Shoreline Golf Links, Shoreline Amphitheatre, and Charleston Park. An irrigation system is currently in place using blended water (recycled water, potable water, and well water). The Shoreline Golf Links has a sophisticated irrigation system that can provide customized levels of potable and non-potable water. The system is supplied by the City of Mountain View Shoreline irrigation pump station (**Figure 3-1**). The proposed Project would restore delivery of recycled water to the pump station. The existing pipeline delivered approximately 512 AFY of recycled water to the Golf Links from the Regional Plant prior to service interruption. The pump station is expected to resume the use of recycled water for

**Table3-1 - Estimated Recycling Water Demand**

	Estimated Demand	
Recycled Water Use	Acre Feet per Year (AFY)	Million Gallons per Day (average) (MGD)
Shoreline Golf Links and Park Area Irrigation	512	0.46
Shoreline Area Business Park Landscape Irrigation	<b>707</b>	<b>0.63</b>
Median & Highway Interchange Landscape Irrigation	<b>75</b>	<b>0.07</b>
Moffett Field Landscape Irrigation & Business Usage	<b>262</b>	<b>0.23</b>
Miscellaneous	<b>45</b>	<b>0.04</b>
<b>Total</b>	<b>1,600</b>	<b>1.4</b>

SOURCE: RMC, Preliminary Project Assessment Work, September 2003

irrigation purposes once service is restored. Irrigation would occur through a network of buried pipes that supply spray nozzles, and would occur at night when the clubs are closed. The systems are operated and maintained by well-trained professionals, thereby minimizing ponding and runoff. It is expected that 0.46 mgd of recycled water would be used each day on average in the Shoreline Golf Links and Park area.

#### ***MEDIAN AND HIGHWAY IRRIGATION***

Caltrans irrigates five landscaped areas of interchanges and intersections (Embarcadero Road, Oregon Expressway, San Antonio Blvd., Rengstorff, and Shoreline Blvd.) within the study area. The RWQCP would provide an estimated 75 AFY of recycled water for irrigation purposes. In addition, the City of Mountain View irrigates medians on Shoreline Blvd., Amphitheatre Parkway, Charleston Road, Crittenden Lane, and Garcia Blvd., that would also be irrigated using recycled water.

#### ***MOFFETT FIELD/ NASA AMES DEVELOPMENT***

The Moffett Field development area consists of approximately 2,000 acres of land between Highway 101 and the southwestern edge of the San Francisco Bay in the northern portion of Santa Clara County, California. Proposed development under the NASA Ames Development Plan (NADP) includes office space, a research and development area, housing, business and retail spaces, and open spaces. The *NASA Ames Development Plan – Final Programmatic Environmental Impact Statement* (DCE, 2002) indicates that recycled water would be used for built while others would be developed over time. It is estimated that upon complete build out, irrigation of the Ames Research Center, NASA Research Park, and Bay View would use 0.23 mgd of recycled water. Two stub-outs for future recycled water use at the Moffett Field/NASA Ames Development would be constructed at the end of La Avendia Avenue and Charleston Road just before Stevens Creek.

#### ***MISCELLANEOUS USES***

It is estimated that miscellaneous uses such as at the City of Palo Alto Municipal Service Center and Animal Control Facility, irrigation of mitigated vegetation near Matadero Creek, as well as use at the City of Mountain View fire station could use an estimated 0.04 mgd on average, of recycled water. Industrial users of recycled water may include other City and County departments as well as private industry.

### 3.3 Construction Schedule and Methods

Pipeline construction would take an estimated eighteen months. Construction would start in mid-July 2007 and continue through December 2008.

Pipeline construction would consist of 22,000 feet of pipeline sized between 18 and 30 inches and 27,000 feet of pipe ranging between 6 and 16 inches within city and county owned public easements and road right-of-ways. Pipeline installation for all sections would use standard open-cut trenching techniques using continuous sheet pile shoring, speed shoring, or trench box bracing except at the intersection of Embarcadero Road and East Bayshore Road where horizontal directional drilling would be utilized, the intersection of East Bayshore Road and San Antonio Road where microtunneling would be utilized and the crossing of Matadero Creek, Adobe Creek and Permanente Creek where the pipeline would be hung from the side of existing bridge structures.

Standard installation of the pipeline would proceed at the rate of approximately 50 to 100 feet per day in more difficult conditions, and 100 to 150 feet per day in easier conditions with an overall work zone of 300 to 600 feet long. For work within the roadways, trench width would be approximately four feet, with active work areas of about eight feet on one side of the trench and 10 to 12 feet on the other side for access by trucks and loaders, resulting in a construction easement approximately 20 to 30 feet wide. For the purpose of this analysis, a construction easement of 25 to 30 feet is assumed, and would be used as the Area of Potential Effect (APE). Excavated trench materials would be hauled to an approved landfill for disposal.

Trenchless construction techniques, such as horizontal directional drilling and microtunneling, would be used to cross 1) the intersection of Embarcadero Road and East Bayshore Road in order to avoid traffic and utility impacts, and 2) the intersection of East Bayshore Road and San Antonio Road in order to avoid traffic impacts. Damage to the road and non-paved areas would be repaired. If any landscaped areas are disturbed by construction activities, the disturbed areas would be revegetated with native plants indigenous to the disturbed area.

#### EQUIPMENT / STAGING

Installation of the pipeline would require, but is not limited to, the following equipment: crane, excavator, backhoe, front-end loaders, dump trucks, diesel generator, water tank, flat-bed truck, compactors, double transfer trucks for soil hauling, concrete trucks, paving equipment and baker tanks (as needed).

Equipment and vehicle staging would be accommodated either at each construction site, therefore increasing the total area of disturbance, or at a centralized staging area (such as the Regional Plant, Former Los Altos Treatment Plant, or the Animal Control Center). Staging would be avoided at sensitive areas such as riparian or other habitat.

### 3.4 Right-of-Way Issues / Permits Required

The proposed facilities would be sited within existing Regional Plant easements and through city and county lands (primarily streets). Portions of the pipeline would be within Santa Clara Valley Water District (SCVWD) easements.

Permits are required from the following agencies:

- City of Mountain View: Encroachment Permit
- City of Palo Alto: Encroachment and Street Work Permit
- Santa Clara Valley Water District (SCVWD) – for construction across creeks / flood control channels
- California Regional Water Quality Control Board (RWQCB): NPDES permit for construction preparation of SWPPP

- Caltrans – Encroachment Permit
- CALOSHA – Underground Classification for tunnels

The Project has been sited to avoid direct impact on wetlands and sensitive habitats, including those that could support special status species. In addition, mitigation has been incorporated into the Project to avoid or minimize the potential indirect effects on habitat or sensitive species, such as erosion or noise.

Therefore, no impact or significant impact is expected to these resources and no permits from the US Army Corps of Engineers, USFWS, National Marine Fisheries Service, or CDFG are expected to be required for wetlands or endangered species. These agencies received the Draft Mitigated Negative Declaration (2003) for review and the City of Palo Alto has continued to coordinate with these agencies to confirm that no permits are required.

## Chapter 4 Environmental Consequences

The environmental impacts of the proposed project were evaluated in the IS/MND (attached in Appendix A). Updated information and analysis to meet NEPA, Environmental Justice (Executive Order 12898), federal Endangered Species Act (ESA) and National Historic Preservation Act (NHPA) (Section 106) requirements has been conducted and are summarized in the sections below. No significant impacts that cannot be mitigated were identified.

### 4.1 Biological Resources

#### Setting

A full discussion of biological resources occurring or potentially occurring in and adjacent to the Project site is presented in Appendix B and in the following section.

The western portion of the Project area between the RWQCP and Adobe Creek is located within the Palo Alto Baylands Nature Preserve. This 1,940-acre preserve extends from San Francisquito Creek south to Charleston Slough in Palo Alto. The western Project area includes diked coastal salt marsh habitat and the Emily Renzel Wetlands, the landfill and adjacent ruderal levee, the Adobe Creek Trail and other public trails, Matadero Creek and Adobe Creek.

East of Adobe Creek, the Project area includes urban habitat and commercial development. Vegetation consists of ornamental trees and other landscaping. In addition, Permanente Creek and Stevens Creek cross the eastern portion of the Project area.

With respect to compliance with the federal Endangered Species Act, a species list of the federally-listed plant and wildlife species known to occur within the general region of the Project area and potentially occurring within the Project site itself was obtained from the FWS website on August 24, 2006. This list is presented in Table B-1 of Appendix B. This list includes one federally-listed plant species and eight federally-listed wildlife species to be considered in this analysis.

The one plant species identified within the project region, the California seablite, is considered to have been extirpated from the region including the Project area. No other federally-listed species were observed within the Project area during the August 2003 field reconnaissance.

Table B-2 in Appendix B describes the habitat requirements for the eight federally-listed wildlife species which potentially occur in the general Project area. Five of these species have low or no potential for occurring within the project area based on the revisions to the project and on assessment of suitable habitat. Three of these federally-listed animal species have at least a moderate potential to occur within or adjacent to the surveyed Project study area: Central California coast steelhead, California clapper rail, and salt marsh harvest mouse.

#### Wetlands Effects

No wetlands or waters of the U.S. regulated under Section 404 of the federal Clean Water Act would be affected by the project. The proposed pipeline would be located completely within existing roadways, except at creek crossings, where the pipeline would be hung on existing bridge structures, avoiding impact to wetlands or waters of the U.S.

The CEQA IS/MND evaluated the project including a pipeline route segment that extended from the RWQCP along and within the existing levee across the marshland adjacent to the plant to a point just north of Matadero Creek, where the alignment joined the existing frontage road. This alignment alternative is no longer under consideration. The proposed pipeline alignment would follow existing roads west and south around the plant and marshland area.

### **Special Status Species Effects**

The proposed project would have no effect on federally-listed species or their designated critical habitats (Table B-2).

Though steelhead and Chinook salmon are not expected to spawn in creeks within the Project site (Matadero Creek, Adobe Creek, Permanente Creek and Stevens Creek), these species may forage in Matadero Creek, Adobe Creek, and Stevens Creek. However, since the pipeline would be installed on existing bridge structures over these creeks, there would be no disturbance of these creeks or the creek habitat and no species affect. Measures incorporated into the project for erosion control and spill prevention would insure that construction activities adjacent to the creeks do not result in indirect effects.

The California clapper rail and the salt marsh harvest mouse could occur in the marshland adjacent to the treatment plant. Since the proposed pipeline no longer follows the existing levee that crosses this marshland area, there would not be any indirect habitat effects from project construction or direct mortality of individual animals moving into the construction area.

## **4.2 Cultural Resources**

### **Regulatory Framework**

Archaeological and architectural resources (buildings and structures) are protected through the National Historic Preservation Act (NHPA) of 1966 (16 USC 470f) and its implementing regulation, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Section 106 of the NHPA requires federal agencies (e.g., BIA, BLM, Reclamation, USACOE, etc.), prior to implementing an “undertaking” (e.g., issuing a federal permit), to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing on the National Register of Historic Places (NRHP). Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a tribe to be determined eligible for inclusion in the NRHP. Under the NHPA, a find is significant if it meets the NRHP listing criteria in 36 CFR 60.4:

The American Indian Religious Freedom Act of 1978 allows access to sites of religious importance to Native Americans. On federal land, the Archaeological Resources Protection Act (ARPA) and Native American Graves Protection and Repatriation Act (NAGPRA) would apply. ARPA assigns penalties for vandalism and the unauthorized collection of archaeological resources on federal land and provides for federal agencies to issue permits for scientific excavation by qualified archaeologists. NAGPRA assigns ownership of Native American graves found on federal land to their direct descendants or to a culturally affiliated tribe or organization and provides for repatriation of human remains and funerary items to identified Native American descendants.

Because federal funds from the U.S. Bureau of Reclamation are proposed for this project, the NHPA and its implementing regulations (16 USC 470 et seq., 36 CFR 800, 36 CFR 60, and 36 CFR 63) would apply. The NHPA establishes the federal government’s policy on historic preservation and the programs, including the NRHP, through which that policy is implemented. Under the NHPA, historic properties include “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places” (16 USC 470w (5)).

### **Area of Potential Effects**

The Area of Potential Effects (APE) for this project is limited to the footprint of the construction area (**Figure 3-1**). Pipeline construction would consist of 22,000 feet of pipeline sized between 18 and 30 inches within city and county-owned public easements and road right-of-ways. For work within the roadways, trench width would be approximately four feet, with active work areas of about eight feet on



one side of the trench and 10 to 12 feet on the other side for access by trucks and loaders. The construction area includes laterals extending off the main pipeline to connect to specific user sites. These short lateral pipelines would range from 6 to 16 inches in diameter and would be constructed within public streets and right-of-ways. Trenchless construction techniques, such as horizontal directional drilling and microtunneling, would be used to cross two intersections (Embarcadero Road at East Bayshore Road and East Bayshore Road at San Antonio Road) in order to avoid traffic impacts. The extent of the APE was established in light of the unobtrusive nature of the project during operation and the fact the trenching operations would take place in road right-of-ways, which would employ a relatively narrow trench and not cause additional impacts to native soil surfaces. Because of the lack of above-ground features or facilities associated with the project and because buildings would not be altered or damaged, the APE for this project does not include any buildings.

## **Analysis**

### **Literature Review and Field Survey**

The effort to identify cultural resources in the project APE consisted of archival research, contacts with Native Americans, and a field survey. A description of the cultural history of the area is provided in the Cultural Resources Report prepared for this project (ESA 2003a, as updated in June 2006). This report has been submitted to Reclamation.

A records search of all pertinent survey and site data was first conducted at the Northwest Information Center, Sonoma State University, on June 1, 2003. The records were accessed by utilizing the Mountain View, Calif., U.S. Geological Survey (USGS) 7.5-minute quadrangle map, unsectioned, Township 5N, Range 4W. In an effort to establish a general impression of the area archaeologically, the review followed the pipeline alignment along with a ¼ mile Study Area boundary. An update to this records search was conducted on May 4, 2006 [File No. 05-1041] to include the lateral pipelines that were not addressed in the previous 2003 records search. The archival methods were the same.

Previous surveys and studies and archaeological site records were accessed as they pertained to the Study Area. Records were also accessed and reviewed in the *Directory of Properties in the Historic Property Data File for Santa Clara County* for information on sites of recognized historical significance within the *National Register of Historic Places*, the *California Register of Historic Resources*, the *California Inventory of Historic Resources* (1976), the *California Historical Landmarks* (1996), and the *California Points of Historical Interest* (1992). In addition, the California Department of Transportation (CALTRANS) State and Local Bridge Survey (1986) was consulted.

The cultural resources inventory also included a field reconnaissance of the project APE. The cultural resources field survey was conducted by ESA's Dean Martorana on September 10, 2003. All accessible open ground was inspected in random transects spaced no greater than 30 meters. The purpose of the field survey was to verify the existence and location of properties that had been previously identified in the pre-field literature search, as well as a field inspection to identify any constituents of previously unidentified cultural sites. The majority of the area consists of artificial fill and built environment, which prevented any substantive examination of the surface.

### **Native American Consultation and Indian Sacred Sites**

Cultural institutions, lifeways, culturally valued viewsheds, places of cultural association, and other sacred places and trust assets must also be considered under NEPA (40 CFR 1501.2), Executive Order 12898 and sometimes other authorities (Executive Order 13175, Executive Order 13007, NAGPRA). Executive Order 13007 specifically deals with sacred sites.



The Native American Heritage Commission (NAHC) was contacted on May 5, 2006 in order to request a database search for sacred lands or other cultural properties of significance to local Native Americans. The sacred lands survey failed to indicate the presence of cultural resources in the project area. No Indian Sacred Sites are known to exist within the APE. The NAHC provided a list of Native American contacts that may have further knowledge of the project area with respect to cultural resources and potential impacts to those resources that could occur as a result of the proposed project. Each person or organization listed on the NAHC list was contacted by letter in May 2006 (Cultural Resources Report, Appendix A) requesting information about locations of importance to Native Americans. No response has been received to date.

## **Results**

The records and information search indicated that no archaeological or historical resources have been previously identified within the APE. However, a number of archaeological sites have been recorded within one-quarter mile of the project alignments. Segments of the alignment have been surveyed before; the surveys were negative for cultural resources, but did indicate that previously recorded sites did occur in the area—outside the APE for this project. The Cultural Resources report describes briefly four sites found outside the APE for the project but within the project region; these recorded sites occur a minimum of up to one-half mile to a mile from the APE for the project.

Archaeological inventories in urban areas are constrained due to low to zero surface visibility from the presence of contemporary buildings, structures, pavement, landscaping, etc. As a result, no evidence of archaeological resources was observed. Much of the project area has been recently developed, principally with industrial parks. Therefore, no extant historical resources were identified in the project area. The reconnaissance survey failed to reveal surface evidence of archaeological or cultural resources. As mentioned above, a pedestrian survey is constrained due to the extensive built environment in the project area. The APE does not include any of the cultural properties identified by the records search. No historic properties were recorded for the purposes of this report.

Reasonable means have been used to identify cultural resources within the APE of the proposed project, including archival research, contacts with Native Americans, and a field survey. Although several cultural resource sites have been identified in the general study area for the proposed project, none have been identified within the APE. Also, the three bridges that the pipelines will be hung across are all less than 50 years old and therefore not eligible for consideration as a historic property pursuant to 36 CFR Part 60.4.

Based on the findings documented in the cultural resource report, Reclamation (the lead Federal Agency) concluded that no historic properties will be affected by the proposed undertaking (36 CFR Part 800.4(d)(1)). Pursuant to the 36 CFR Part 800 regulations outlining the Section 106 process, Reclamation has entered into consultation with the California State Historic Preservation Office (SHPO) on a determination of effect of no historic properties affected. The consultation package was sent to the California SHPO on August 28<sup>th</sup> 2006. The SHPO is afforded 30 days to comment on each determination made by Reclamation.

Because the proposed project is located within a built environment, the utility of pedestrian archaeological survey methods is limited due to the lack of native soil and topographic visibility. Archaeological sites can consist of extensive subsurface components that would be difficult to locate without extensive excavations. The project area is located in an area that was attractive to prehistoric inhabitants in light of the proximity to brackish and fresh water resources. It is therefore possible that significant buried archaeological sites, that could not be identified using standard inventory methods, are located in the APE. However, a significant portion of the APE is underlain by artificial fill material used to fill in the estuarine areas for development; this is especially the case within Moffett Field where the highest density of recorded archaeological sites occurs in this area that are now obscured by a large

deposit of fill material. Although some of the sites identified in the project area but outside the project APE were declared destroyed, subsurface elements or poorly recorded components of these sites may exist in the area of the alignment. Federal regulations (36 CFR Part 800.13(b) include provisions for the discovery of historic properties during the implementation of an undertaking and state that the agency official shall make reasonable efforts to avoid, minimize, or mitigate adverse effects to such properties.

- A. If cultural resources, *such as chipped or ground stone, large quantities of shell, historic debris, building foundations, or human bone*, are inadvertently discovered during ground-disturbing activities, no further construction should be permitted within 250 feet of the find until the Cal EPA or City is notified and an avoidance, evaluation or mitigation plan can be formulated in consultation with the SHPO.
- B. In the event of discovery or recognition of any human remains on the site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of Santa Clara County has been contacted, per Section 7050.5 of the California Health and Safety Code. *If the coroner determines that the human remains are of Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (Pub. Res. Code Sec. 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:*
  - a. *The coroner of the county has been informed and has determined that no investigation of the cause of death is required; and*
  - b. *if the remains are of Native American origin,*
    - 1. *The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or*
    - 2. *The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.*

### 4.3 Indian Trust Assets

Indian trust assets (ITAs) are legal interests in assets that are held in trust by the U.S. Government for federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the interior is the trustee for the United States on behalf of federally recognized Indian tribes. “Assets” are anything owned that holds monetary value. “Legal interests” means there is a property interest for which there is a legal remedy, such a compensation or injunction, if there is improper interference. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something. Indian trust assets can not be sold, leased or otherwise alienated without United States’ approval. Trust assets may include lands, minerals, and natural resources, as well as hunting, fishing, and water rights. Indian reservations, rancherias, and public domain

allotments are examples of lands that are often considered trust assets. In some cases, Indian trust assets may be located off trust land.

Reclamation shares the Indian trust responsibility with all other agencies of the Executive Branch to protect and maintain Indian Trust assets reserved by or granted to Indian tribes, or Indian individuals by treaty, statute, or Executive Order.

This action does not impact Indian trust assets. The nearest Indian trust assets are located at the Chicken Ranch Rancheria in Tuolumne County, some 95 air miles to the northeast of this action. Reclamation concludes this action has no effect on Indian trust assets.

## 4.4 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” The executive order’s purpose is to avoid the disproportionate placement of any adverse environmental, economic, social, or health effects resulting from federal actions and policies on minority and low-income populations. By memorandum on February 11, 1994, the president directed the EPA to ensure that agencies analyze the environmental effects on minorities and low-income populations and communities, including human health, social and economic effects.

The EPA defines environmental justice as: “The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means no group of people, including racial, ethnic, or economic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies.” (EPA 1998).

Project implementation would take place within the City of Palo Alto and the City of Mountain View, which have annual median incomes of \$90,377 and \$69,362, respectively (US Census Bureau 2006a, b). In 2000, 4.8 percent of the Palo Alto population’s income and 6.8 percent of the Mountain View population’s income was below the poverty level (US Census Bureau 2006a, b). Census data (race) from 2000 for the City of Palo Alto and the City of Mountain View are shown in Table 4-1.

**Table 4-1: Population Percentage by Race/Ethnicity for Palo Alto and Mountain View**

Race	Palo Alto (percent)	Mountain View (percent)
White	75.8	63.8
Black or African American	2.0	2.5
American Indian or Alaska Native	0.2	0.4
Asian	17.2	20.7
Native Hawaiian or Pacific Islander	0.1	0.3
Other race	1.4	8.3
Two or more races <sup>1</sup>	3.2	4.1
Hispanic or Latino <sup>2</sup>	4.6	18.3

Footnotes:

1. In combination with one or more of the other races listed. The percentages may add to more than 100 percent because individuals may report more than one race.
  2. Persons of Hispanic Origin may be of any race.
- Source: US Census Bureau 2006a, b

The proposed Project would include the construction of a pipeline to connect an existing park and a developed golf course. Proposed alignments were identified based upon available routes, and would not result in a disproportionately high and adverse human health or environmental effects on minority populations or low-income populations.

The proposed Project would construct a recycled water pipeline the roadways, and possibly through parking lots, roadway shoulders, or trails. The proposed project would have construction impacts from the construction of the pipeline. These impacts would be temporary and would be limited in duration to the area of pipeline being constructed each day. Construction in certain areas may require short-term detours since construction progresses at an approximate rate of 100 to 150 feet per day. Noise, air quality, recreation, and traffic impacts would be mitigated through standard construction measures designed to reduce impacts to less than significant levels. These measures include restrictions on construction hours and type of equipment, implementing a dust abatement program, coordination with recreational providers, and development of a traffic plan to maintain traffic flow and emergency access, ensure roadside safety, and minimize effects on parking and transit.

A result of Project implementation would be the reduction of source wastewater discharge at the Dumbarton Bridge Outfall. The area near the outfall is used as a local fishing spot used primarily by low-income individuals. Reduction in discharge would reduce concentrations of metals and other chemicals into the area resulting in a cleaner environment for fishing and other recreation. This would be considered a beneficial impact.

Operation of the proposed water recycling project would be conducted in accordance with all applicable federal and state requirements. There are no federal standards governing wastewater reclamation and reuse in the United States, although the EPA has sponsored the preparation of *Guidelines for Water Reuse* (Camp Dresser & McKee, 1992). Many states, including California, have developed wastewater reclamation regulations, with the objective of protecting public health and allowing for the safe use of recycled water. The California Department of Health Services established water quality criteria for reclamation operations, which are set forth in Title 22, Division 4, Chapter 3, of the *California Code of Regulations (CCR) Water Recycling Criteria*. The Title 22 standards are among the most stringent standards in the world for public health protection. Since the adoption of Title 22 in 1978, the use of recycled water for non-potable (not fit to drink) uses has expanded throughout the state and is projected to continue to grow over the next several decades. The proposed project would be designed and operated in accordance with the applicable Title 22 requirements and would therefore not have a significant impact on public health or water quality.

Although there are minority and low-income populations within the project area, the project impacts would be temporary (during construction) and would be mitigated to less than significant levels. In addition, the project would provide water for public uses (golf course and parks) that would benefit the local populations. Consequently, implementation of the Project would not disproportionately affect any minority or low-income populations.

## Chapter 5 Consultation and Coordination

### 5.1 Summary of Public Involvement

The City of Palo Alto has conducted public outreach on the project during the CEQA process as well as during the pre-design phase of the project. Public notices and copies of the CEQA document were sent to agencies, environmental groups, businesses, organizations and individuals, public meetings were held, and two brochures were sent at different phases of the project.

#### CEQA MND Document Distribution

##### **Draft MND**

The Draft Mitigated Negative Declaration (MND) was submitted to the State Clearinghouse (15 copies) on October 30, 2003. That same day, the Draft MND was submitted to the State Water Resources Control Board (8 copies). The public review for the Draft MND extended from October 31, 2003 to December 2, 2003. Copies of the MND were also distributed to the following agencies/interested parties:

- Native American Heritage Commission
- City of Mountain View – Planning Department
- Santa Clara Valley Transportation Authority
- Association of Bay Area Governments
- Metropolitan Transportation Commission
- Palo Alto Unified School District
- City of Los Altos
- SF – Regional Water Quality Control Board
- Bay Area Air Quality Management District
- Santa Clara Valley Water District
- Caltrans
- California Department of Fish and Game
- Bay Conservation and Development Commission
- NASA
- Santa Clara County Clerk's Office

On November 14, 2003, ESA sent a revised Figure 1-1 to all of the above-listed parties with the following note:

“Please replace Figure 1-1 of the Draft Mitigated Negative Declaration for the Palo Alto Regional Water Quality Control Plan with the enclosed revised figure. This updated figure correctly illustrates the alternative route of the pipeline from the RWQCP along the levee in the Baylands area, in addition to the alignment from the RWQCP along Embarcadero Road. Both the levee and Embarcadero alignments are discussed in the document, but the levee alignment alternative was inadvertently not shown on the original figure.”

##### **Final MND/ NOD**

Palo Alto adopted the MND and approved the project with Resolution No. 8391 in January 12, 2004. The Notice of Determination for project approval was signed on January 13, 2004 and filed with Santa Clara County Clerk within five days. On February 5, 2004, copies of the NOD were submitted to the State

Clearinghouse and copies of the MND and NOD to the State Water Resources Control Board (Division of Financial Assistance, Environmental Services Unit).

### **Public Meetings**

Public Meetings were held during the CEQA process on September 23 and November 19, 2004. A workshop for the RWQCP – Long-term Goals Study that discussed the project was held on July 17, 2003.

A meeting with the environmental groups was held on July 2, 2003. Clean South Bay, Clean Water Action, Sierra Club, and Silicon Valley Pollution Prevention Center attended the meeting. All are supportive of the project.

In addition, three public meetings were held during the pre-design phase of the project - on May 21, 2004, October 5, 2004, and July 20, 2005.

## **5.2 ESA Consultation**

A list of threatened and endangered species in the project area was obtained from the Fish and Wildlife Service (FWS) (See Appendix B). The proposed project would not affect any listed or proposed threatened or endangered species or their designated critical habitats. Therefore, Reclamation did not further consult with the FWS or National Marine Fisheries Service.

## **5.3 National Historic Preservation Act Section 106 Compliance**

Based on the findings documented in the cultural resource report, Reclamation (the lead Federal Agency) concluded that no historic properties will be affected by the proposed undertaking (36 CFR Part 800.4(d)(1)). Pursuant to the 36 CFR Part 800 regulations outlining the Section 106 process, Reclamation has entered into consultation with the California State Historic Preservation Office (SHPO) on a determination of effect of no historic properties affected. The consultation package was sent to the California SHPO on August 28<sup>th</sup> 2006. The SHPO is afforded 30 days to comment on each determination made by Reclamation.

## Chapter 6 Report Preparation

### 6.1 Report Authors

This report was prepared by RMC Water and Environment (RMC) under the direction of Daisy Stark, Palo Alto Regional Water Quality Control Plant. RMC staff included:

- Karen Frye, AICP
- Yousra Tilden
- Kevin Smith
- Kate Streams

Environmental Science Associates (ESA) was also involved in report preparation in regards to biological resources, cultural resources and the public involvement process.

- Leslie Moulton
- Dean Martorana
- Steve Esselman

The following U.S. Bureau of Reclamation staff were involved with report review and revision:

- David Lewis
- Robert Eckart
- Doug Kleinsmith
- Adam Nickels



## References

- ESA 2003a. Palo Alto Regional Water Quality Control Plant Reuse Pipeline Cultural Resources Inventory Report. November 2003.
- ESA 2003b. Palo Alto Regional Water Quality Control Plant Recycled Water Pipeline Project Initial Study and Mitigated Negative Declaration. December 2003.
- US Census Bureau 2006a. <http://quickfacts.census.gov/qfd/states/06/0655282.html>. City of Palo Alto. Accessed on April 19, 2006.
- US Census Bureau 2006b. <http://quickfacts.census.gov/qfd/states/06/0649670.html>. City of Mountain View. Accessed on April 19, 2006.

## **Appendix A - CEQA Initial Study (December 2003)**

## **Appendix B - Biological Resources**

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## Appendix B

### Biological Resources

#### INTRODUCTION

This appendix describes biological and wetland resources in and near the Project site for the Palo Alto Regional Recycled Water Project. It addresses specifically species listed under the federal Endangered Species Act. References used in the preparation of this section include information from the following resources:

- ESA field studies conducted during August 2003 at the Project site and adjacent areas;
- Records from biological databases and software, including the California Natural Diversity Database (CNDDDB) (CDFG, 2003); the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS Inventory) (CNPS, 2003); and the California Wildlife Habitat Relationships System (CDFG, 2002a);
- FWS Website accessed August 24, 2006 to review the current list of federally listed-species potentially occurring in the project area.
- Other biological literature (Hickman, 1993; USFWS, 2003a; USFWS, 2003b; Mayer and Laudenslayer, 1998; Zeiner *et al.* (1990); Sawyer and Keeler-Woolf, 1995; Holland, 1986).

#### SETTING

##### Regional Setting

Palo Alto is within the California Floristic Province, Central Western California Region, San Francisco Bay Area subregion (Hickman, 1993).<sup>1</sup> The climate of this subregion is Mediterranean with a broad range of habitats including mosaics of marsh and wetland communities, native and non-native grasslands, riparian scrubs and forests, upland oak and mixed evergreen forests, chaparral and upland scrubs. In the “bioregional” characterizations developed as part of California’s Agreement on Biological Diversity (a multi-agency memorandum signed in 1993), Palo Alto is located within the Bay/Delta Bioregion.

The salt marshes of the South Bay were once quite extensive. In much of the area south of the present location of the San Mateo Bridge, salt marshes formed a band ranging mostly from 3 to 6 miles in width, lining the Bay edge (see Nichols and Wright, 1971; Goals Project, 1999). Presently the vast majority of this area is occupied with salt ponds or bay fill. Although a few relatively large patches of remnant salt marsh are found in the areas of Redwood City, Newark, and Fremont (encompassed within the 23,000-acre Don Edwards San Francisco Bay National

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<sup>1</sup> Geographic subdivisions are used to describe and predict features of the natural landscape. The system of geographic units is four-tiered: provinces, regions, subregions, and districts. The State of California is covered by three floristic provinces: California Floristic Province, Great Basin and Desert. The California Floristic Province is the largest, includes most of the state and small portions of Oregon, Nevada and Baja California, Mexico and is made up of six regions.

Wildlife Refuge), the Palo Alto Baylands Nature Preserve (Baylands Preserve) represents a large majority of the intact salt marsh remaining on the Bay's west side, between the Dumbarton Bridge and San Jose.

### **Project Setting**

The western portion of the Project area between the Regional Water Quality Control Plant and Adobe Creek is located within the Palo Alto Baylands Nature Preserve. This 1,940-acre preserve extends from San Francisquito Creek south to Charleston Slough in Palo Alto. The western Project area includes diked coastal salt marsh habitat and the Emily Renzel Wetlands, the landfill and adjacent ruderal levee, the Adobe Creek Trail and other public trails, Matadero Creek and Adobe Creek. The proposed project alignment is in the existing roadway that is the frontage road along Highway 101; it is adjacent to but separated from the baylands.

East of Adobe Creek, the Project area includes urban habitat and commercial development. Vegetation consists of ornamental trees and other landscaping. In addition, Permanente Creek and Stevens Creek cross the eastern portion of the Project area.

### ***Plant Communities and Wildlife Habitat***

The vegetation/habitat classification system for this Project is based on Sawyer and Keeler-Wolf (1995) and influenced by the classification system of Holland (1986). The classification system is a hierarchical treatment of vegetation communities/wildlife habitats that describes natural communities, naturalized communities, invasive plant associations, and human-influenced and urban landscapes. The vegetation generally correlates with wildlife habitat types.

The wildlife habitat classification system used for this Project is the California Wildlife Habitat Relationships System (CFDG, 2002a), based primarily on Mayer and Laudenslayer (1998) and Zeiner *et al.* (1990). This classification system has an emphasis on modeling the distribution, life history, and habitat needs for each individual species.

The Project area supports the following habitat/vegetation community types: Northern Coastal Salt Marsh, Willow Riparian Habitat, Coastal Freshwater Marsh, Aquatic Habitat, Ruderal and Urban.

### **Northern Coastal Salt Marsh**

This habitat occurs at the northern end of the project area. The proposed pipeline does not extend through this habitat but would be installed in the frontage road adjacent to it. In tidal areas around San Francisco Bay (including diked historically tidal marshes) cordgrass (*Spartina foliosa*) is found in the lower zone (approximately mean sea level to mean high tide). The mid- and upper-zones of marsh community are dominated by pickleweed, alkali heath (*Frankenia salina*), fat hen (*Aptriplex triangularis*), saltgrass (*Distichlis spicata*), and marsh gumplant (*Grindelia stricta* var. *angustifolia*). Tidal salt marshes also may be bisected by a network of sloughs and small channels that facilitate tidal reach into the interior of the marsh. These channels are subject to more frequent and deeper flooding and therefore support different plant species, such as cordgrass and alkali bulrush. Diked northern coastal salt marsh is located east and west

of the Project pipeline alignment between the Regional Water Quality Control Plant and Matadero Creek. Saltwater from San Francisco Bay passes through these wetlands and then into Matadero Creek through a series of controlled gates.

Salt marshes are sensitive communities because of historic and continuing loss of wetland habitats from agricultural conversion, urbanization, and flood control development, and because they provide habitat, or are the sole habitat, for several federally-listed species, including those discussed below. Various estimates have been made regarding the amount of loss of tidal salt marsh around San Francisco Bay estuary; generally, at least 75 percent of this habitat type has been filled or otherwise destroyed over the last 150 years (Shellhammer, 2000).

Raptors that forage in Bay Area salt marsh habitats include northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus caeruleus*), barn owl (*Tyto alba*), and American kestrel (*Falco sparverius*). In and among the pickleweed, both salt marsh harvest mice (*Reithrodontomys raviventris*) and western harvest mice (*Reithrodontomys megalotis*) may occur in areas with high quality emergent wetlands and adjacent upland environs. Other common mammals in salt marsh habitats include California vole (*Microtus californicus*), house mouse (*Mus musculus*), black-tailed jackrabbit (*Lepus californicus*), and red fox (*Vulpes vulpes*).

### Willow Riparian Habitat

Willow riparian habitat is dominated by various species of willows (*Salix* sp.) with alder (*Alnus* sp.), cottonwood (*Populus fremontii* ssp. *fremontii*), bay (*Umbellularia californica*), coast live oak (*Quercus agrifolia*), and northern California black walnut (*Juglans californica* var. *hindsii*). Shrub species include wild rose (*Rosa californica*) and blackberry (*Rubus ursinus*). Herbaceous vegetation may include sedges, grasses and other freshwater marsh species described below. Matadero Creek, Adobe Creek, and Stevens Creek support willow riparian habitat. Matadero Creek and Adobe Creek are concrete-lined at the location of the Project alignment crossings. Upstream reaches of all three of these drainages are concrete-lined and culverted. Open reaches of these drainages downstream from the Project alignment support dense riparian habitat.

In urban settings, wildlife found in riparian forests is commonly associated with the “edge” environment between the forest community and adjacent grasslands, chaparral, or developed areas. Riparian forests and surrounding woodlands support an abundant assortment of reptiles and amphibians such as western toad (*Bufo boreas*), California newt (*Taricha torosa*), Pacific tree frog (*Hyla regilla*), and California slender salamander (*Batrachoseps attenuatus*), which feed on plants and the abundant terrestrial and aquatic invertebrates. Resident and migratory birds found in mixed riparian forest and woodland include song sparrow (*Melospiza melodia*), spotted towhee (*Pipilo maculatus*), yellow-rumped warbler (*Dendroica coronata*), and white-crowned sparrow (*Zonotrichia leucophrys*). Western scrub jays (*Aphelocoma californica*), barn swallow (*Hirundo rustica*), and black phoebe (*Sayornis nigricans*) forage extensively in riparian forest habitats. Riparian areas are also important foraging grounds for aerial and ground foraging insectivores such as *Myotis* bat species and pallid bats. Mammals such as western harvest mouse, deer mouse (*Peromyscus maniculatus*), opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*) also utilize streamside habitats for nesting and foraging. Raptors that breed and nest in local

woodland communities include red-tailed hawk, sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), white-tailed kite, and others.

### Coastal Freshwater Marsh

The freshwater marsh plant community occurs where year-round, shallow, standing water is present. It is associated with the edges of Matadero Creek, Adobe Creek, Permanente Creek, and Stevens Creek. More extensive freshwater marsh is located in restored ponds east of the Project alignment between Matadero Creek and Adobe Creek. Freshwater marsh in the Project area is dominated by perennial emergent species, including cattail (*Typha* sp.), tule (*Scirpus* sp.), and umbrella sedge (*Cyperus eragrostis*). Annual species, such as water smartweed (*Polygonum* sp.), duckweed (*Lemna* sp.), and annual rabbit's-foot grass (*Polypogon monspeliensis*), are also common in the freshwater marsh. For the most part, this community does not occur in portions of drainages that are channelized and concrete-lined.

The narrow band of emergent marsh vegetation along canals, ditches, and other drainages provides some nesting and foraging opportunities and cover for water bird species and small mammals, including mallards (*Anas platyrhynchos*), green-winged teals (*Anas crecca*), great egrets (*Ardea alba*), marsh wrens (*Cistothorus palustris*), song sparrows (*Melospiza melodia*), red-winged blackbirds (*Agelaius phoeniceus*), raccoons, and California voles.

### Aquatic Habitat

Within the Project area, marshes described above and Matadero Creek, Adobe Creek, Permanente Creek, and Stevens Creek provide aquatic habitat. Common fish species that have been identified in the lower portions of Santa Clara Valley creeks can be classified into the Sacramento blackfish – introduced fishes association. Such species include Sacramento perch (*Archoplites interruptus*), splittail (*Pogonichthys macrolepidotus*), tule perch (*Hysterocarpus traski*) (uncommon), and sucker (*Catostomus occidentalis*), joined by the introduced green sunfish (*Lepomis cyanellus*), channel catfish (*Ictalurus punctatus*) and mosquitofish (*Gambusia affinis*).

### Ruderal Habitat

Ruderal (disturbed and weedy) habitats are found in the Project area along roadsides and other developed or disturbed areas, along the upper banks of the levee and within the landfill area. These sites are dominated by weedy non-native species, though the upper banks of the levee do support some native scrub species such as coyote brush (*Baccharis pilularis*) and California sagebrush (*Artemisia californica*). Disturbed habitats along roadsides may be subject to frequent and severe vegetation and soil disturbances by vehicles as a result of ongoing maintenance uses of the road corridor.

Ruderal habitats provide limited foraging or nesting habitat for a few species of birds and small mammals. Some ruderal habitats within the Project area are occupied by ground squirrels and other rodents, and may support burrowing owl nest sites.



## Urban Habitat

The portion of the Project area east of Adobe Creek is located within urban habitat. Land use in this area is primarily commercial. Urban habitat generally consists of planted vegetation that includes ornamental tree groves, street strips, and other landscaped features in an urban setting.

While individual landscaped areas can be of limited habitat value, the overall mosaic can provide habitat of some value to common urban adapted species such as mourning dove (*Zenaida macroura*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and American robin (*Turdus migratorius*). Generally, the ornamental trees in the Project area are not likely to be used as nest sites for raptors such as red-tailed hawk and other birds due to the density of surrounding urban development, traffic noise and other human disturbances.

## Wetlands

Wetlands are ecologically productive habitats that support a rich variety of both plant and animal life. The importance and sensitivity of wetlands has increased as a result of their value as recharge areas and filters for water supplies and widespread filling and destruction to enable urban and agricultural development.

### Federal Wetland Definition

Wetlands are a subset of “waters of the United States” and receive protection under Section 404 of the Clean Water Act (CWA). The term “waters of the United States” as defined in Code of Federal Regulations (33 CFR 328.3[a] and [b]; 40 CFR 230.3[s]) includes those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. In extant regulations, these may be defined as sloughs, marshes, wet meadows, or natural ponds. However, the Supreme Court of the United States ruled (January 8, 2001: *Solid Waste Agency of Northwestern Cook County v. United States Army Corps of Engineers et al.*) that certain isolated wetlands do not fall under the jurisdiction of the CWA.

### Regulation of Activities in Wetlands

The regulations and policies of various federal agencies (e.g., U.S. Army Corps of Engineers (Corps)), U.S. Environmental Protection Agency (EPA) and U.S. Fish and Wildlife Service (USFWS) mandate that the filling of wetlands be avoided unless it can be demonstrated that no practicable alternatives (to filling wetlands) exist. The Corps has primary federal responsibility for administering regulations that concern waters and wetlands on the Project site. In this regard, the Corps acts under two statutory authorities, the Rivers and Harbors Act (Sections 9 and 10), which governs specified activities in “navigable waters,” and the Clean Water Act (Section 404), which governs specified activities in “waters of the United States,” including wetlands and special aquatic sites. The Corps requires that a permit be obtained if a Project proposes placing structures within, over, or under navigable waters. Navigable waters are those that are subject to the ebb and flow of tide shoreward to the Mean High Water Mark. The U.S. EPA, USFWS, NMFS, and several other agencies provide comment on Corps permit applications. The U.S. EPA has provided the

primary criteria for evaluating the biological impacts of Corps permit actions in wetlands and other special aquatic sites.

### **Jurisdictional Wetlands at the Project Site**

The western portion of the Project area includes salt marsh wetlands within the Baylands Preserve. At one time, a pipeline alignment along the existing levee that crosses the marsh area was under consideration but this has been eliminated. The proposed pipeline would not be installed within the marsh habitat area. Instead, it would be installed in the existing frontage roadway to the west. No wetlands under Corps jurisdiction per the Clean Water Act would be affected by the proposed project.

Matadero Creek, Adobe Creek, Permanente Creek, and Stevens Creek are potential Waters of the U.S. under Section 404 of the Clean Water Act and the Corps would likely take jurisdiction over the Ordinary High Water Mark of these drainages as well as any instream wetlands. Emergent vegetation within these drainages indicates freshwater conditions. These drainages are not likely to be considered tidal navigable waters under Section 10 of the Rivers and Harbors Act, though they were historically tidal. The project does not involve construction within these channels and thus would not occur within jurisdictional wetlands. The proposed pipeline would be hung on existing bridge structures to cross these creeks, with no disturbance to the creek channel or associated wetlands.

In addition, one small area of wetland vegetation is located within the Project area. A patch of Bermuda grass (*Cynodon dactylon*) and prickly ox tongue (roughly 400 square feet) is located in a low area of ornamental landscaping north of the Project alignment along Garcia Avenue. The Corps likely would consider this area isolated and not jurisdictional wetlands.

### **Federally-listed Species and Communities**

Several species known to occur in the Project vicinity are protected pursuant to federal endangered species laws. For purposes of this document, these federally-listed species include:

- Plant and animal species designated as rare, threatened, or endangered under the federal endangered species acts;
- Species protected by the Federal Migratory Bird Treaty Act (16 USC 703-711); and
- Bald and golden eagles protected by the Federal Bald Eagle Protection Act (16 USC 668).

### **Federally-Listed Species and Communities at the Project Site**

A list of the federally-listed plant and wildlife species known to occur within the general region of the Project site and potentially occurring within the Project site itself was compiled from 1) analysis of previous studies conducted within the Project site concerning federally-listed plants and animals; 2) information from the California Natural Diversity Data Base (CNDDB), the USFWS, and the CDFG; 3) review of pertinent scientific literature for relevant federally-listed species; 4) review of the most recent Notice of Review for federally-listed and candidate taxa; 5) review of the CDFG's most recent list of special animals and plants, which also includes

federally-listed and candidate plants; 6) review of CNPS literature, and 7) recent field reconnaissance conducted by ESA. This list is presented on Table B-1 and includes one federally-listed plant species and eight federally-listed wildlife species to be considered in this analysis.

### **Plants**

The one plant species identified within the project region, the California seablite, is considered to have been extirpated from the region including the Project area. No other federally-listed species were observed within the Project area during the August, 2003 field reconnaissance.

### **Wildlife**

A total of eight federally-listed wildlife species were identified as occurring or potentially occurring in the general Project area. As shown on Table A-1, five of these species have low or no potential for occurring within the project area or for being affected by the project activities based on assessment of suitable habitat. Three of these federally-listed animal species have at least a moderate potential to occur within or adjacent to the surveyed Project study area: Central California coast steelhead, California clapper rail, and salt marsh harvest mouse. These are described below along with an assessment of the potential for the project to affect each of these species.

In summary, the project would not occur within the habitat area for any of these species and would not affect these species. The pipeline would be installed on existing bridge structures across each of the creeks, with no disturbance to the creek or the fishery. The pipeline would not be installed in the existing levee that crosses the marsh habitat, as previously considered; instead it would be installed within the frontage road adjacent, but set back from the marsh area. For these reasons, the project would have no effect on federally-listed species.

### **Central California coast steelhead**

The central California coast steelhead, a Federal Threatened species, is an anadromous fish species of the Bay Area. Steelhead usually inhabit clear, cool perennial streams with dense canopy cover and gravel substrate for spawning. This species usually lives two or three seasons after spawning unlike salmon, which do not.

**Appendix B - Table B-1: Federally Listed Species of Interest for the Palo Alto/Mt. View/Moffett Area Reclaimed Water Pipeline Project**

Common and Scientific Names	Legal Status <sup>1</sup>		Determination and Summary of Analysis		
	USFWS	NMFS	Species Effects Determination	Critical Habitat Effects Determination	Summary of Reasons for Effects Determination
Aquatic Species					
Central California Coast steelhead <i>Oncorhynchus mykiss</i>	FT	--	No effect	No destruction or adverse modification	Low to moderate potential for this species to occur in project area streams. It is not known to spawn in project area streams; may forage in some reaches. Quality of project area habitat is low due to channelization, concrete-lined reaches, and urban setting. Project does not involve construction within streambed. Proposed pipeline would be hung on existing bridges crossing project area streams; thus no likely adverse direct or indirect effect to this species or its habitat.
Terrestrial Species					
Common and Scientific Names	Legal Status <sup>2</sup>		Determination and Summary of Analysis		
	USFWS	CNPS	Overall Species Effect	Overall Critical Habitat Effect	Summary of Reasons for Effects Determination
California tiger salamander <i>Ambystoma californiense</i>	FT		No effect	No destruction or adverse modification	There is low potential for this species to occur in the project area and no suitable habitat (i.e., seasonal freshwater ponds with little or no emergent vegetation) was identified as present in project area. Proposed pipeline facilities would be constructed in existing streets and, as described above for steelhead, the project does not involve construction activities within wetlands or stream areas. No proposed activity would occur within or near potential habitat; thus no likely adverse direct or indirect effect to this species or its habitat.
California red-legged frog <i>Rana aurora draytonii</i>	FT		No effect	No destruction or adverse modification	Low potential for this species to occur in the project area. Species occurs more than four miles upstream in Matadero Creek. Project area streams are separated from upstream populations by long unvegetated, concrete-lined and culverted reaches of the stream. No project construction activity would occur within project area streams; the pipeline would be hung across existing bridges.
San Francisco garter snake <i>Thamnophis sirtalis tetrataenia</i>	FE		No effect	No destruction or adverse modification	The project area is not within the range of this species.

**Appendix B - Table B-1: Federally Listed Species of Interest for the Palo Alto/Mt. View/Moffett Area Reclaimed Water Pipeline Project**

Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT		No effect	No destruction or adverse modification	Low potential to occur in the project area; suitable nesting habitat not present in Project area. Project construction activity would not occur in marsh or other wetland areas.
California clapper rail <i>Rallus longirostris obsoletus</i>	FE		No effect	No destruction or adverse modification	There is low to moderate potential for this species to occur in the project area. Breeding population occurs northeast of project area within Baylands Preserve. Diked wetlands provide low quality nesting habitat; may forage in Project area. No project construction activity occurs within wetland or marsh areas.
California least tern <i>Sterna antillarum browni</i>	FE		No effect	No destruction or adverse modification	There is low potential for this species to occur in the project area. Suitable nesting habitat (bare or sparsely vegetated flat substrates including sand beaches, alkali flats, land fills, or paved areas) not present in project area. Neighboring landfill is subject to frequent disturbance and grading. Proposed pipeline would be constructed in existing, active roadways or hung on existing bridges, without disturbing potential habitat for this species.
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE		No effect	No destruction or adverse modification	There is a high potential for this species to occur in the project area, as it occurs in Baylands Preserve adjacent to project area. However, the proposed pipeline would be constructed in existing, active roadways or hung on existing bridges, without directly or indirectly disturbing potential marsh habitat for this species.
California seablite <i>Suaeda californica</i>	FE		No effect	No destruction or adverse modification	While there is a record of this species occurring at one time in the project vicinity (salt flats of Palo Alto Yacht Harbor), species considered extirpated from Bay Area, currently existing only in vicinity of Morro Bay (CNPS, 2003). Further, Project construction activity would not occur in marsh or other wetland areas.

Notes:

<sup>1</sup> Legal Status:

Federal Protected Listing Categories

FE Endangered (Listed as being in danger of extinction)

FT Threatened (Listed as likely to become endangered within the foreseeable future)

**Project Area Occurrence.** Steelhead could potentially forage in Matadero Creek, Adobe Creek, and Stevens Creek. Each of these streams supported historic steelhead runs; however, extensive upland and channel alterations have eliminated spawning from drainages in the Project area. This is generally due to the absence and/or generally poor quality of spawning habitat as a result of urbanization and stream alterations, the presence of dams or impassible structures that impede upstream migration, and creek drying and low streamflow as a result of reservoir management. No project construction activity would occur within any of these creeks, so the project would not directly affect potential habitat or the steelhead fishery. Measures incorporated into the project for erosion control and spill prevention would insure that construction activities do not result in indirect effects.

### California clapper rail

The California clapper rail is a Federal Endangered species. Clapper rails are year-round residents of a range of salt and brackish marsh habitat in the south and central San Francisco Bay and typically inhabit salt marsh dominated by pickleweed and cordgrass. In the North Bay (Petaluma, Napa-Sonoma, and Suisun Marshes) it inhabits tidal brackish marsh with a range of vegetative structure and composition (USFWS, 2003).

Habitat must include shallow water or mudflats for foraging and this species typically would forage along the vegetation/mudflat interface, along tidal creeks, and in higher marsh vegetation. Channels with daily tidal flushing are important for foraging and movement. Vegetated channel banks and adjacent upland vegetation is used for cover when water is high. Nesting occurs in saline emergent wetlands, mostly in the lower zones, with abundant cordgrass and nearby tidal sloughs. Clapper rails are not known to breed in or inhabit diked wetlands (Flannery, 2002).

**Project Area Occurrence.** Tidal marshes in the Palo Alto area have been noted to be “the most productive and densely populated marshlands in the Bay Area for California clapper rail” (Goals Project, 1999). Breeding populations have been reported to occur in the northern portion of the Baylands Preserve (CNDDB, 2003). Over 100 clapper rails were recorded in this area in recent surveys (Thomas Reid Associates, 2001). Salt marsh in the Project area does not provide quality breeding habitat for California clapper rail. Salt marsh adjacent to the landfill levee provides limited cover and does not receive tidal flushing. However, California clapper rail occur within the vicinity of the Project and could forage in Project area salt marshes.

The proposed pipeline alignment no longer includes the existing levee across this marsh area; now the pipeline would be installed completely within the existing frontage road, adjacent to but set back from the marsh habitat. Therefore, the project would not disturb any habitat and not affect the clapper rail.

### Salt marsh harvest mouse

The salt marsh harvest mouse is a federal Endangered species. The species inhabits saline emergent wetlands (coastal salt marsh) of San Francisco Bay and its tributaries. Pickleweed marsh is the primary habitat of this mouse. Upper zone salt marsh and adjacent upland provides cover and allows movement away from water at high tide or during floods. In the spring and

summer, some individuals make daily movements from the pickleweed marsh to higher grassland.

**Project Area Occurrence.** Within the Project area, pickleweed salt marsh is found within the western portion of the Project area. The CNDDDB contains a number of records in the vicinity of the Project area within the Baylands Preserve. Pickleweed marsh west of the landfill levee provides habitat for this species, which has been observed in this area. Habitat along the bank of the levee is disturbed, but may provide some cover for salt marsh harvest mice traveling out of the pickleweed marsh. The levee and adjacent landfill do not provide habitat for this species.

The proposed pipeline alignment no longer includes the existing levee across this marsh area; now the pipeline would be installed completely within the existing frontage road, adjacent to but set back from the marsh habitat. Therefore, the project would not disturb any habitat and not affect the salt marsh harvest mouse.

### **Wildlife Movement Corridors**

Wildlife movement corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, by human disturbance, or by the encroachment of urban development. Movement corridors are important as the combination of topography and other natural factors in combination with urbanization has fragmented or separated large open space areas. The fragmentation of natural habitat creates isolated “islands” of vegetation that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. Corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange with separate populations.

The Baylands Preserve and the western portion of the Project area provide valuable primarily undeveloped open space for a variety of wildlife species. This area has value as a corridor along the edge of the Bay, connecting more or less continuous marsh habitat both north and south of this portion of the Project area. This corridor may increase in importance as projected salt marsh restoration projects transform salt ponds both north and south of this area. The project would not fragment or reduce the baylands habitat area or degrade its function for wildlife movement.

For the most part, the eastern Project area is barren commercial property, or minimally vegetated urban habitat with scattered, isolated patches of ornamental vegetation. The value of this portion of the Project area as a movement corridor is minimal.

### **Local Plans and Policies**

#### **Palo Alto Tree Ordinance**

Chapter 8.10 of the Palo Alto Municipal Code (Tree Preservation and Management Regulations) defines “protected trees” to include coast live oak and valley oak with a trunk diameter greater than 11.5 inches above normal grade. Removal of such trees, or work within the dripline (*i.e.*, trenching under overhanging branches) requires a permit from the city. Application for the



permit requires submittal of a tree report, to be reviewed by the City's arborist. Removed or damaged oak trees may require replacement at a ratio to be decided following review.

## BCDC

The Bay Conservation and Development Commission (BCDC) is authorized by the *McAteer Petris Act* to analyze, plan and regulate San Francisco Bay and its shoreline. It implements the San Francisco Bay Plan, and regulates filling and dredging in the Bay, its sloughs and marshes, certain creek and tributaries. BCDC jurisdiction includes the Bay and a shoreline band that extends inland 100 feet from the mean high tide line. BCDC permits are required for all work within either the Bay or the shoreline band.

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